

# Neurology and Therapeutics

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## Neuroprotective effect of catechins gambier on beta amyloid plasma and cognitive in Dawley-Sprague as model of Alzheimer

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**Objectives:** Alzheimer's disease (AD) is an important social and economic issue for our societies. Patient with AD progress from stage of mild memory impairment to complete dementia. The development of therapeutics against this severe dementia requires assessing the effects of new drugs in animal model. An increasing body of evidence implicates both brain inflammation and oxidative stress in pathogenesis of AD. A variety of studies have demonstrated that herbal extract and active compound of *Uncaria* are effective on the in vitro and in vivo neurodegenerative models. Catechin from *Uncaria gambier* Indonesian traditional herbs have been found to possess anti inflammatory and antioxidative effect. There was no report about neuro protective effect of catechins gambier in Dawley-Sprague as model of Alzheimer. In the present study, we investigated the neuroprotective effect of catechin gambier on beta amyloid-42 plasma ( $A\beta$ -42) and cognitive function of the Dawley-Sprague as animal model for Alzheimer's.

**Methods:** Five groups of each 7 female, 12 weeks, Dawley Sprague, based on negative control, positive control, catechins dose 1, 2, 3. Four groups with ovariectomy and D-galactose 500 mg/weight for 4 weeks. Four animals of each group underwent necropsy to collect the blood for blood evaluation on the second weeks after treatment of catechins. Terminal sacrificed all groups in the 4th week after the treatment.

**Results:** Rats treated Alzheimer showed shift to the light arms and spent long time compared with controls. It shows that the Alzheimer's rat did not fear or panic, which is one of the characteristics amygdala damage. Since the amygdala also affect hippocampus memory's performance. They showed decreased the ability of spatial memory from the 2nd week of giving D-galactose and ovariectomy, but then they showed visible improvement of spatial memory in the 4th weeks. Trends of increasing in movement of group treated with high catechins dose showed an improvement of locomotion. At the end of study, catechins reduced the level of soluble beta amyloid 42 plasma. Low level of  $A\beta$  is required to set up and maintain the plasticity of sinaps and to improve cognitive function.

**Conclusions:** The result of the present study supports the concept of neuroprotective effect of catechin gambier on beta amyloid plasma and cognitive function.

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